AN EVALUATION OF THE NORMAN WELLS PROJECT

BY THE DEPARTMENT OF RENEWABLE RESOURCES

GOVERNMENT OF THE NORTHWEST TERRITORIES

Northwest Territories Renewable Resources

POLICY AND PLANNING DIVISION

AN EVALUATION OF THE NORMAN WELLS PROJECT BY THE DEPARTMENT OF RENEWABLE RESOURCES GOVERNMENT OF THE NORTHWEST TERRITORIES

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ABSTRACT

Following construction of the Norman Wells Oilfield Expansion and Pipeline Project, the Department of Renewable Resources conducted a performance evaluation of the project. The evaluation examines the public hearing process, the National Energy Board's conditional approval process, project management and impact management.

Information for the evaluation was obtained from government files, through questionnaires and from the authors' personal experiences with the project.

Departmental staff assessed each process, identified issues and provided recommendations to improve the process. A total of 47 recommendations are directed to the Department, other government agencies and industry. Specific areas which require improvement are:

1) participation in public hearings;
2) the National Energy Board's conditional approval process (including supplementary studies);
3) project planning and preparation (such as community consultation, contingency planning, environmental protection plans, impact funding and program implementation);
4) communication and cooperation among project personnel including government and industry staff;
5) project regulation and enforcement; and
6) environmental protection and monitoring.

Seven recommendations are directed to existing Departmental programs in areas of pollution control, wildlife management, conservation education and environmental monitoring.

The evaluation also highlights positive aspects of the project. The Department believes that ESSO and Interprovincial Pipe Line acted responsibly during construction of the project, to minimize environmental impacts. The companies also assisted the Department of Renewable Resources with its environmental monitoring programs.

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1. INTRODUCTION

The Norman Wells Oilfield Expansion and Pipeline Project was the largest privately built project in the Northwest Territories. From the Environmental Assessment and Review Process (EARP) hearings in 1980 to post-construction monitoring in 1986, the Department of Renewable Resources has taken an active role in the project. The Department was concerned about potential impacts of the project on renewable resources and renewable resource users. Departmental staff reviewed the proponent's environmental documents and identified terms and conditions for project authorizations that would minimize environmental impacts. During construction of the pipeline system, the Department was involved in field activities including surveillance, enforcement and environmental monitoring. The purpose of field activities was to monitor company compliance with government statutes and regulatory requirements, determine the effectiveness of mitigative measures and identify project impacts.

This evaluation is also an important aspect of our participation in the Norman Wells Project. It examines the processes of impact assessment, project management and impact management and the effectiveness of the Department's involvement in these processes.

Although the Norman Wells Project is essentially two projects, the expansion of the oilfield and the construction of a pipeline system, the evaluation focuses mainly on the pipeline project in which the Department had greater involvement.

2. BACKGROUND

Prior to 1980, when the Norman Wells Oilfield Expansion and Pipeline Project was first proposed, the Department of Renewable Resources had had little experience with large-scale development projects. Most industrial projects in the NWT had been small-scale exploration and mining developments. Through various intergovernmental technical advisory committees such as the Land Use Advisory Committee (LUAC) and the Regional Environmental Review Committee (RERC), the Department provided environmental input into resource development projects.

Following the Department's participation in the Norman Wells EARP and National Energy Board (NEB) hearings in 1980, it identified the need for coordination of the Department's input into the project. The Environmental Planning and Assessment Division (EPA) of the Department of Renewable Resources was formed in October, 1981 and assumed that role. The Department felt that it was necessary to establish high standards for the project and to follow through with

environmental monitoring programs.

The Department of Renewable Resources was the only Territorial Government department fully represented at all levels of the project. The tasks it undertook included:

- review of impact assessments;
- review of studies required as a result of the NEB's "conditional approval";
- input into project permits, authorizations, licences and agreements;
- Departmental and Territorial Government representation on interdepartmental and territorial-federal committees;
- surveillance and enforcement activities;
- impact monitoring studies;
- community consultation and review of renewable resource compensation claims; and
- response to environmental emergencies.

To fulfill the Department's responsibilities in Yellowknife and in the field, four term positions were created and financed by special impact funding provided by DIAND. All Departmental staff assigned to the project were involved in field activities during construction of the pipeline system.

3. SEQUENCE OF MAJOR EVENTS

From the planning stage to construction of the works, a large project like the Norman Wells Oilfield Expansion and Pipeline Project occurs over a relatively long period of time. Appendix I contains a schedule of events which provides a relatively simple breakdown of major project activities and highlights the Department's involvement in them.

4. EVALUATION METHODS AND OBJECTIVES

This report is the work of several authors, all of whom have been directly involved with the Norman Wells Project on behalf of the Department of Renewable Resources. An independent consultant, who is familiar with the project and assisted the Department in preparing for it, also contributed to sections of the evaluation.

Material for the report was obtained from government files and questionnaires sent to government employees (both Territorial and Federal), industry personnel and native organizations. All parties responded to the questionnaires except IPL, their consultants and the National Energy Board.

The authors drew on their personal experience and involvement with the project to evaluate the Department's participation and performance. There is, therefore, a recognized built-in bias to the evaluation.

The objectives of the evaluation are:

1) To assess the effectiveness of the Department of Renewable Resources' participation in the public review process and the regulatory review process;

2) To assess the effectiveness of the Department's involvement in project management and impact management;

3) To assess the overall review process with respect to DIAND, NEB and IPL involvement;

4) To provide recommendations for the Department's participation in future large-scale development projects; and

5) To provide recommendations on improving the public and regulatory review processes.

A list of abbreviations used in the report is provided in Appendix III.

5. PUBLIC REVIEW PROCESS

5.1 Hearings - EARP and NEB

5.1.1 Introduction

The Department decided in May 1980 to participate in the Norman Wells EARP hearings. The Department contracted Salix Enterprises Ltd. to provide an analysis of issues raised in the past in relation to pipelines in the Mackenzie Valley. Subsequently, that analysis was used by the Department in outlining issues that it would present as evidence.

The NEB decision to hold environmental hearings on the IPL application in the North was not made until after the EARP hearings. The Department chose to present effectively the same material to the second hearing. Had it been known at the outset that two hearings were to be held, the Department might have chosen to reduce costs by attending only one.

5.1.2 Witness and Evidence Preparation

A decision was made to present overview evidence rather than expert testimony on specific subjects. Emphasis was on Departmental concerns about the project, inadequacies of the application and a lack of government capability to respond to the project. Dr. Norman Simmons (Assistant Deputy Minister) presented evidence at both hearings and Mr. Hugh Monaghan (Chief, Wildlife Service) appeared with him at the NEB hearings to discuss land use planning.

Evidence was prepared by Lorraine Allison (Salix Enterprises) and several representatives from the Department of Renewable Resources. Although writing began early, the witnesses' redrafting requirements and their demand for preparatory material prevented other work from proceeding. Briefing binders which provided the witnesses with background information to the issues were prepared.

At the EARP hearings, evidence was distributed immediately prior to Dr. Simmon's appearance. For the NEB, revisions occupied the consultant until the filing date. At EARP, several participants remarked, on record, that the evidence could not get the attention it deserved because of its lateness. IPL said "... it is unfortunate that it was submitted so late just shortly before we have to respond to it and I am concerned that the proponents are not given adequate time to respond properly". Although FEARO did not require prefiled evidence, we recognize that the Department's position was weakened by submitting evidence at the time of the hearing.

RECOMMENDATIONS

1. Witnesses, even those presenting policy, must adhere to strict deadlines and file evidence in advance of their appearance. Witnesses should be assisted with evidence preparation but should be required to take some responsibility upon themselves.

Other recommendations pertaining to hearings can be found in "Departmental Beaufort Sea EARP Evaluation, Department of Renewable Resources, Government of the Northwest Territories, November 1984".

5.1.3 Participation in Hearings

The Department presented witnesses and also questioned the evidence of other participants (proponents and intervenors).

The consultant advised Departmental staff about hearing procedures and techniques, but took a background role in the hearings themselves. Questions of clarification only were allowed by the EARP chairman, while the NEB is formatted in a quasi-judicial manner like most regulatory procedures. The GNWT used Mr. J. Gilmour of the Department of Justice and Public Services.

None of the Departmental staff involved had had any previous experience and the difficulties explaining issues and developing cross-examination sometimes resulted in problems. In fact, this was the first time the GNWT as a whole had ever participated in an NEB hearing. As a result, Departmental personnel are being trained in the presentation of environmental evidence.

RECOMMENDATIONS

2. The Department of Renewable Resources will increase its efficiency and effectiveness at public hearings if it clearly focuses on what it wants to accomplish from participating in the hearing.

3. The individual(s) coordinating input from the Department or the GNWT as a whole, must be experienced and trained to assist expert witnesses. The Department should continue to provide the opportunity for training in the presentation of environmental evidence.

5.1.4 Issues Analysis

Decisions about whether participation in hearings is worthwhile or necessary could be made on the basis of broad Departmental objectives and the mandate of the hearing tribunal.

FEARO has a broad mandate to bring evidence to the attention of the Federal Government, but does not have specific regulatory authority. EARP is one body to which broad issues may be brought, with a reasonable expectation that they will be translated into recommendations.

An examination of the issues brought before EARP by the Department and the Norman Wells EARP report is given in Appendix II. Most issues were recognized by the Panel in its

recommendations. The GNWT or any actor did little to follow-up on the recommendations. However, it is also impossible to say that significant results did not occur at least in part as a result of issues raised at the EARP hearings - land use planning for instance.

By contrast, the NEB has a specific mandate and regulatory responsibilities. It does not make recommendations, but rather writes regulations. The thoughts of the Board with respect to the application were expressed in its "Reasons for Decision" and its specific requirements in "Certificate of Public Convenience and Necessity No. OC-35". The NEB ignored those areas of testimony that it considered outside its area of jurisdiction (Appendix II). Even its later interpretations of "mitigation" and "monitoring" were too narrow from the Department's point of view.

The issues brought up by the Department in both hearings fall into three categories:

1) First are those issues of concern to the Department because of their direct and indirect effects on wildlife and renewable resource harvesting. Within this category fall issues like contingency plans, summer construction and mitigation and monitoring.

   The National Energy Board and other regulatory tribunals may be the appropriate place to air issues in this

category because they are within their jurisdiction. Issues clearly beyond their mandate will probably be ignored. Once construction begins, the pressures of doing the job will likely prevent the company from doing anything it does not have to do.

2) Issues of a more general, persuasive nature that require cooperation between agencies and are of interest to the Department such as land use planning or project management may be dealt with more effectively by airing them before an EARP hearing.

   The Panel may help to move other agencies more quickly, but there is no guarantee of action. EARP's positive recommendations may be part of the reason that land use planning is proceeding. By contrast, EARP's failure to mention coordination of project management may be one reason it remains an issue.

3) The third type of issue often brought forward at hearings by resource management agencies is one which is entirely within their mandate and their control, such as the collection of baseline data. The argument is made that low budgets, large land areas and other priorities keep the agency from providing those kinds of data. In the past, it has been argued that industry should provide those data or funding to collect them.

In our opinion, the recession and the IPL application mark the beginning of the period in which such arguments will receive neither support nor sympathy, especially when dealing with an area like the Mackenzie Valley which has already been subjected to considerable development.

In retrospect, raising the need for woodland caribou studies and management plans for furbearers, caribou and moose along the Valley seems to have been a mistake. It would be a larger mistake to bring up the same issues another time, as progress by the Department since 1980 in dealing with those matters which it stated were a priority has been minimal.

Expectations of EARP should be based on an assessment of the value of airing certain issues and having them translated into recommendations. Implementation of the recommendations depends on the will of those people and agencies towards whom they are directed - there are no guarantees, the process is merely advisory.

Expectations of NEB or other quasi-judicial proceedings and decisions about participation should be limited to matters within the Board's jurisdiction. Matters beyond the jurisdiction of the Board may be heard and may receive publicity, but will not form part of the rulings of the Board.

RECOMMENDATIONS

4. For participation in future hearings, the Department should direct its analysis of issues towards Departmental objectives and the terms of reference of the hearing. This will increase work efficiency and provide more satisfactory results. Issues to be avoided include the "baseline studies" type that are entirely within the Department's mandate.

5. At future hearings, consideration should be given to presenting an expert witness to discuss the Department's experience with the Norman Wells Project.

6. Given recent Beaufort Sea developments and the possibility of another pipeline down the Mackenzie Valley, it is recommended that a regional land use planning commission be established for the Mackenzie Valley and a land use plan be prepared prior to project approval.

5.1.5 Successes, Failures, Costs

The Department of Renewable Resources gained valuable experience from its involvement in the impact assessment process. Although costs were significant, this experience has improved the Department's ability to effectively participate in other hearings (i.e., Beaufort EARP).

6. CONDITIONAL APPROVAL PROCESS

6.1 Introduction

On November 16, 1981, the National Energy Board granted Interprovincial Pipe Line (NW) Ltd. "conditional approval" to construct a pipeline from Norman Wells to Zama, Alberta. This approval was issued under "Certificate of Public Convenience and Necessity No. OC-35".

Conditional approval of the project was a new procedure. It was adopted by the National Energy Board specifically for the Norman Wells Project. Because it was a new procedure, it is not surprising that both the company and other participants seemed to have expectations that differed from one another and the NEB. Interprovincial Pipe Line was given conditional approval to build the Norman Wells Pipeline subject to completing 34 specified supplementary environmental and socio-economic studies to the satisfaction of the Board. As reports were completed, copies were forwarded to each of the intervenors who had 30 days to review them and provide comments. The conditional approval process was an extension of the hearings and involvement was restricted to the hearings' intervenors. The conditional approval period lasted for two years from "Reasons for Decision" until leave-to-construct.

6.2 Supplementary Studies

6.2.1 Departmental Involvement

The Department of Renewable Resources reviewed all of IPL's supplementary environmental reports. For reviewing reports outside the Department's area of expertise, assistance was obtained from the Department of the Environment and the Department of Fisheries and Oceans. Because DFO and DOE were not intervenors, this was their only opportunity to review supplementary studies prepared by IPL.

Renewable Resources assembled comments from its regional offices and other agencies and submitted them to IPL and the National Energy Board. IPL then had the option to accept or reject any of the recommendations. If IPL rejected any of the comments or recommendations, they had to provide a reason for rejecting them. The Department did not have the opportunity to submit a rebuttal to IPL's comments.

6.2.2 Incorporation of Departmental Comments

In most cases, IPL rejected the recommendations made by the Department. The common responses were - "The company disagrees with the need to ..." or "The company believes that there is sufficient detail to permit development of mitigative measures". Where the company accepted a suggestion provided by the Department, the usual response by the company was - "appropriate measures will be included in

the Environmental Protection Plan" or "site specific detail will be provided in the Environmental Protection Plan". The National Energy Board approved most of IPL's supplementary studies without change. In a number of environmental reports, the NEB required IPL to submit detailed site specific mitigative measures. This was required in the following areas:

1) Fish resources in the vicinity of water crossings;
2) Raptors;
3) Locations sensitive to terrain disturbance;
4) Archeological sites;
5) Waterfowl;
6) Wildlife habitat at facility sites;
7) Drainage and erosion controls;
8) Borrow sites; and
9) Spoil disposal sites.

It is not known whether IPL prepared these site specific mitigative measures. Final plans were not submitted to the GNWT and they were not part of the Environmental Procedures Manual or the Environmental Protection Plan.

6.2.3 Issues Related to the Supplementary Studies

Disagreements between the Department of Renewable Resources and the proponent began almost immediately following conditional approval of the project. Design of supplementary

studies, terms of reference and the level of detail provided were the recurring issues. The Department may have polarized the situation unnecessarily because of personality conflicts. Some of the conflict could have been avoided, however, if the intervenors and project regulators had been asked by the NEB to provide input into the terms of reference for the supplementary studies. The requirements for the environmental studies were established by the National Energy Board in its "Reasons for Decision" and the Department felt that in some cases, the terms of reference developed by the company were poorly defined. The fact that all Federal Government agencies did not participate in the hearings, prevented them from participating in the conditional approval process and, therefore, limited its effectiveness.

Major issues raised during the hearings were to be addressed during the conditional approval process. Two major issues which remained between IPL and the Department were:

1) Protection of raptor nest sites; and
2) Timing and quality of contingency plans.

Although the company publicly stated its commitment to protect raptors, the protection measures developed by IPL were not considered adequate by the Department. In attempting to resolve the issue, IPL complained that Departmental staff were "harassing" the company.

Contingency planning for fuel and toxic chemical spills also provoked a long series of communications involving the Department. A plan considered adequate by the Department was not in place until after pipeline construction had begun.

The conditional approval process is a distinct possibility for future projects involving the National Energy Board. The value of this approach would be enhanced if the following recommendations were implemented.

RECOMMENDATIONS

7. Input into the terms of reference to supplementary studies should be invited from interested intervenors and regulators.

8. Reports produced during the conditional approval process should be reviewed by regulators as well as intervenors. Informal meetings to discuss draft supplementary reports should be encouraged.

9. When issues that originate outside the technical competence of the Department (such as the use of wood chips to insulate thaw sensitive slopes) have environmental implications, the Department should continue to seek external technical advice.

6.3 Environmental Protection Plan / Environmental Procedures Manual

6.3.1 Departmental Involvement

Under condition 15(b) of the Certificate of Public Convenience and Necessity No. OC-35, IPL was required to "submit for the approval of the Board, an environmental procedures manual".

The document IPL planned to submit, as identified in its schedule for filing, was an "Environmental Protection Plan" (EPP).

In April, 1982 IPL filed an outline for the Environmental Protection Plan. The Department submitted its comments on the EPP Outline on June 24 and Interprovincial Pipe Line responded by letter on August 3, 1982. The letter indicated that:

> The purpose of the report is to present an outline to show how the EPP will be organized and presented in a comprehensive Environmental Protection Plan. This plan will be submitted to the Board prior to construction.

In October, 1982 IPL submitted its "Environmental Protection Plan for Winter Clearing". This report was reviewed by Renewable Resources with assistance from the Department of the Environment and was found to be comprehensive and well organized. The National Energy Board requested IPL to

incorporate over half of the Department's comments.

In February, 1983 IPL submitted an "Environmental Procedures Manual" (EPM) for intervenor review. According to IPL's schedule for filing, this final document to be submitted in March, 1983 was supposed to be the Environmental Protection Plan. Apart from the Environmental Procedures Manual, five other documents were filed in the same month. This put a considerable time constraint on the Department. Not only were filing dates changed, but there was considerable confusion over whether the EPM was the same document as the required EPP. The issue was never resolved to the satisfaction of the Department.

The Department of Renewable Resources coordinated a complete review of the EPM. Comments were received from the GNWT: Department of Renewable Resources and Department of Municipal and Community Affairs (formerly the Department of Local Government), and the Federal Government: Department of the Environment and Department of Fisheries and Oceans. A meeting with IPL and its consultants was held on March 16 and 17, 1983 to discuss our concerns. It was evident from the meeting that the document would not contain site specific measures for environmental protection during mainline construction. IPL and its consultants indicated quite clearly that they did not consider the EPM to be equivalent in purpose or content to an EPP.

On April 6, 1983 the Department of Renewable Resources submitted a 28 page document outlining its concerns with the EPM. It concluded:

> the Environmental Procedures Manual does not provide an adequate assessment of the environmental concerns pertaining to the construction process. In its present form, the EPM does not provide sufficient information to insure that environmental impacts will be minimized. In its present form, the EPM lacks considerable detail.

The major areas of deficiency were:

1) lack of detailed construction schedules;
2) lack of detailed construction guidelines and specifications (including coded alignment sheets and drawings);
3) lack of environmental specifications and procedures as they relate to site specific construction activities;
4) lack of inspector and contractor training programs;
5) lack of detailed contingency plans;
6) lack of detailed monitoring programs and their implementation; and
7) lack of incorporated material from environmental reports.

It was the position of the Department of Renewable Resources

that IPL should revise the Environmental Procedures Manual to provide the level of detail promised by the EPP Outline and "restore our confidence that construction can take place with a minimum amount of damage to the environment".

RECOMMENDATIONS

10. The timeframe for all submissions within the conditional approval process should be negotiated by the proponent and regulators with input from intervenors.

11. The Environmental Protection Plan should have clear terms of reference. The document should be produced by the proponent and revised as necessary by all interested parties, including project regulators. Changes to the plan will be required as experience from the project is gained.

12. The EPP should be tied to the regulatory process. It should be the single enforcement document used by all authorities. All current project regulation and agreements should be included in the document.

13. The EPP must contain protection measures at least as stringent as the environmental regulations applied to the project, including those under applicable permits, authorizations and environmental agreements. It should also contain contingency plans.

6.3.2 Incorporation of Departmental Comments

IPL disagreed with most of the concerns raised by the Department in its review of the EPM. The company contended that "although the manual does not follow the outline of the EPP point-by-point, IPL believes it does fulfill the intent of the NEB". IPL contended that site specific mitigative measures were incorporated into the EPM.

IPL concluded that "the Environmental Procedures Manual when modified as provided herein and directed by the Board, when read against the background of our previous environmental filing and commitments provide considerable detail". With regard to the deficiencies the Department identified, IPL's response was that "an appropriate level of information is provided".

The NEB was satisfied with the response of IPL to the Department's comments. The Board did not accept any of the concerns raised and did not provide any explanation why they were rejected. The Department was not satisfied with IPL's explanations or the way the NEB handled our comments.

6.3.3 Issues

The review and approval of the Environmental Protection Plan for Winter Clearing and the Environmental Protection Plan Outline led to expectations from the Department that the

final environmental planning document filed by IPL would be of similar high quality. When the title of the document was changed from a "plan" to a "manual", with an associated different objective, it raised fears that the resulting document would be less comprehensive and less useful.

As discussed earlier, changes to the schedule for filing environmental reports and the reduced time allowed for review of the EPM put considerable strain on the Department's resources.

In a letter to the National Energy Board, the Department expressed concern over changes to the schedule and questioned whether the EPM and EPP were the same document and whether IPL had to follow the EPP Outline. The NEB responded that "it is the Board's understanding that the Environmental Procedures Manual and the Environmental Protection Plan are the same document". The NEB also advised that "unless authorization by the Board to do otherwise, IPL must follow the detailed outline for the EPP". Not until three months later (May 25, 1986), were we advised by the Board that the EPM was different from the EPP and that IPL would file a field EPP, outside the conditional approval process, for review by project regulators. The Department believed that the EPP should have been an enforceable document by the NEB.

The Environmental Protection Plan finally produced proved to be comprehensive and well prepared. IPL and its contractors

made a concerted effort to comply with the document. Some operating conditions set by the company were more stringent than those set by government.

In general, the Department felt that the NEB paid little heed to our comments and that the time spent reviewing the supplementary studies and the Environmental Procedures Manual was of little value. It is hard to judge whether the Department's efforts had any influence on IPL or not.

6.4 Relationship Between Participants

The Department of Renewable Resources had only advisory input into the NEB approvals process, even in areas within its own mandate. The quasi-judicial nature of the NEB caused great difficulty for the Department and other government agencies trying to obtain project information.

Throughout the conditional approval process IPL was very cautious in its attitude toward the intervenors. At times, confusion between the Department's role as an intervenor and its role as a regulator created difficulties in dealing with the company. None of the participants seemed to enter into the process with a cooperative attitude.

Relationships between the Department and other intervenors during this period were more cordial. The Department requested the opinions of other government agencies and included them in comments to the NEB. It also cooperated on

an informal level with the Dene Nation.

RECOMMENDATIONS

14. Intervenors should have better access to project-related information. The National Energy Board should be required to have an office in the North during future projects in the Northwest Territories to provide better access to Board staff and information.

15. The Government of the Northwest Territories should pursue direct representation on the National Energy Board.

6.5 Successes, Failures, Costs

The commitment of time for Departmental staff to participate in the conditional approval process was much larger than anticipated. Many of our recommendations were not acted on and the results achieved would not warrant such a time commitment again.

The Environmental Protection Plan for Winter Clearing, produced by IPL, was a model document. Although it set standards higher than any northern project, DIAND failed to seize the opportunity to use it. As recommended earlier, the EPP should be tied to the regulatory process and enforced by all regulatory authorities on the project.

7.0 PROJECT AND IMPACT MANAGEMENT

7.1 Impact Funding

The Department of Renewable Resources estimated forced growth as a result of the Norman Wells Project in excess of 1.5 million dollars over four years.

Of the 3.0 million dollars promised to the Government of the Northwest Territories, the Department's first approved budget totalled 1.5 million dollars for the four year period from 1982 to 1986. The budget included nine person years - a Field Coordinator, five Renewable Resource Officers, one Biologist, one Technician and one Clerk.

Between September 1982 and May 1983, other GNWT departments began to plan for the project and funds were allocated to them at the expense of Renewable Resources' planned programs. Three positions were lost and all programs experienced cuts in project funding. Renewable Resource Officers were expected to provide technical assistance to the Pipeline Monitoring Biologist in addition to performing their regular duties. The need for clerical support in Norman Wells and Fort Simpson led to the loss of a fourth position.

Although the Federal Government had agreed to provide impact funding, program funds were not received until late 1983. By this time, the Department had initiated environmental programs by re-allocating money from existing

programs.

Budget cuts totalled 35 percent of the first approved budget, resulting in the loss of opportunity to do major impact studies and contract air support for pipeline inspections.

With a final budget of 980 thousand dollars, the Department staffed a Renewable Resource Officer and Clerk in Norman Wells and Fort Simpson, a Field Supervisor in Yellowknife and a Biologist in Fort Simpson. Over the four year period from 1982 to 1986, the Department spent 255 thousand dollars or 26 percent of its Norman Wells budget on environmental programs associated with the project.

The number of Departmental staff assigned to the construction phase of the project was found to be adequate, but as indicated above, funds were not available to conduct major impact studies.

RECOMMENDATIONS

16. For large-scale projects like Norman Wells, the Department of Renewable Resources requires supplementary funding to participate in project management and impact management activities. Funding must be provided early in the project.

17. The Department of Renewable Resources should use its Norman Wells experience to assess its funding

requirements to participate in future development projects.

18. During project construction, all Departmental staff should be required to keep track of any time spent on project-related activities. This will allow for a more accurate determination of time spent on the project and Departmental costs.

7.2 Project Regulation

7.2.1 Federal

On July 30, 1981, the Honourable John Munro, Minister of Indian Affairs and Northern Development, gave conditional approval to the Norman Wells Pipeline and Oilfield Expansion Project. The project was then able to proceed through the regulatory process.

7.2.1.1 Easement and Environmental Agreements

The Easement or Right-of Way Agreement was a negotiated agreement between DIAND and IPL. Environmental clauses were not included in the Easement Agreement since a separate Environmental Agreement was drawn up to include environmental terms and conditions.

The Department of Renewable Resources participated in the review of the Environmental Agreement and recommended clauses

related to wildlife, habitat and pollution control.

The main problem with the Environmental Agreement from the Department's perspective was DIAND's unwillingness to tie conditions to the permitting process. An example of this is monitoring. The Federal Government did not indicate under regulatory approvals what monitoring studies it required of the company. DIAND reasoned that the Environmental Agreement was designed for the long-term operation of the pipeline even though many of the conditions referred to "construction and operation". As a result, many of the conditions in the Agreement which related to construction, were unenforceable (See also Section 7.2.1.2). It is felt that the Environmental Agreement did not serve the purpose for which it was intended.

There was considerable confusion over who was responsible for administering the document. Initially, the document was prepared and administered by DIAND in Ottawa. The responsibility was later transferred to the Federal Coordinator's Office in Yellowknife. However, the Federal Coordinator's Office was unresponsive to environmental terms and conditions and was concerned primarily with public affairs and socio-economic matters. Finally, responsibility for the Environmental Agreement was assigned to the Environment and Conservation Division of DIAND in Yellowknife.

RECOMMENDATIONS

19. The Department should consider using contractual documents (e.g., agreements) to incorporate environmental and socio-economic concerns as part of the project approval process. Where possible, government agencies must incorporate terms and conditions of the agreements into their regulatory approvals.

7.2.1.2 Land Use, Quarry and Timber Permits

Through the Land Use Advisory Committee (LUAC), the Department reviews all applications for land use permits. The Department of Renewable Resources experienced considerable frustration in reviewing such applications for the project. The only conditions DIAND was willing to incorporate into the permits were those from a list of standard operating conditions.

On November 10, 1982 IPL applied for a land use permit to clear the right-of-way and permanent facility sites. DIAND was unwilling to accept and enforce any of the operating standards outlined in the Environmental Protection Plan except for those contained in their own list of standard operating conditions.

At the same time, IPL also applied for land use permits for temporary off right-of-way facilities. One of the

applications was to set up a 400 man camp at Kp 78 (Bear Rock). Original plans submitted to EARP and the NEB had the camp located at Kp 40. The location of the camp was of concern because of its close proximity to Fort Norman and an important raptor nesting area. Other government departments, regional offices in Inuvik and the community of Fort Norman also raised concerns over the camp's location. The NEB approved the relocation of the camp without consulting the community or the GNWT. The permit was issued on December 24, 1982 but development work at Kp 78 was deferred for a short time because of the concerns expressed. Subsequently, a meeting was held in the community by IPL to solicit support. The possibility of economic benefits to the community led to community support for the camp. The GNWT abided by the wishes of the community.

On April 5, 1983 IPL applied for a land use permit for mainline construction. The Department had a number of concerns with the application and claimed that IPL had not submitted sufficient supporting information. A meeting of the Land Use Advisory Committee was convened on April 29, 1983 to consider the application.

The Department's concerns were:

1) IPL using the EPM as supporting material to the application when it hadn't been approved;
2) Terms and conditions of the Environmental Agreement;

3) Monitoring programs;

4) Contingency plans;

5) Insulating slopes using wood chips;

6) Borrow requirements;

7) Restoration plans; and

8) Quantities of fuel and dangerous goods.

As a result of the meeting, IPL was requested to provide additional information on fuels, dangerous goods and wood chips. DIAND's only concession to the Department was a commitment to include a need for contingency plans in the land use permit.

The Departments of Renewable Resources and Municipal and Community Affairs were invited to assist DIAND in drawing up the mainline land use permit. IPL submitted the EPM and several supplementary reports as attachments to the permit applications. In our comments to DIAND, we suggested that these documents were less than acceptable. When the application was submitted, the EPM was still before the NEB. In three places, IPL referred to the work being carried out in accordance with the Environmental Procedures Manual. The Department had identified significant concerns with the EPM and the supplementary studies and did not feel they should be included as part of the application in their present form.

The Department of Renewable Resources was disappointed that DIAND did not consider our comments regarding the mainline

land use permit. DIAND did, however, incorporate a condition on monitoring into a later amendment.

The Department was not satisfied with the way DIAND handled permits for borrow sites and spoil disposal locations. In a permit issued on May 18, 1983, DIAND indicated that "approvals for waste disposal and borrow areas will be given on an as and when required basis". Requests were to be submitted one week prior to use. This did not allow a review by other agencies.

RECOMMENDATIONS

20. The Land Use Advisory Committee should participate in developing terms and conditions for project permits rather than acting strictly in an advisory capacity.

21. There should be better interagency cooperation between Federal and Territorial government departments in developing permit terms and conditions regardless of mandate.

7.2.2 Territorial

The Government of the Northwest Territories has jurisdiction over lands within the Norman Wells and Fort Simpson Block Land Transfers (BLT). IPL and ESSO Resources, therefore, had to apply to the Department of Municipal and Community Affairs for permits, leases, and agreements. The Department of

Renewable Resources had little involvement with the authorizations issued to ESSO Resources but was actively involved in the review of IPL submissions.

7.2.2.1 Easement Agreement

Instead of preparing an Environmental Agreement for the pipeline, Municipal and Community Affairs decided that environmental terms and conditions would be included in an Easement Agreement. The Department of Renewable Resources was requested to provide environmental terms and conditions. The Department was pleased with the final Easement Agreement.

7.2.2.2 Land Use Permits and Development Permits

All activities within the Norman Wells Block Land Transfer were administered under the Norman Wells Development Regulations. Within the Fort Simpson Block Land Transfer, construction was regulated under the Commissioner's Lands Act. Regulations under this Act have not been implemented.

Terms and conditions recommended by the Department of Renewable Resources were incorporated into the permits. The Department of Municipal and Community Affairs also incorporated conditions from the Easement Agreement into the permits.

The only problem to occur as a result of the permits was a

misunderstanding over contingency plans. Formal approval to proceed with construction was granted on December 2, 1983 before final approval was given to IPL's contingency plans. As a result, a telex was sent to IPL on November 15, 1983 indicating that approval to proceed with construction did not constitute approval of IPL's contingency plans. IPL was advised to follow the draft contingency plan until such time as the final plan was approved.

RECOMMENDATIONS

22. The Government of the Northwest Territories should implement land use regulations under the Commissioner's Lands Act.

7.2.3 Relationship Between Participants

The GNWT has an advisory role on federal permits and authorizations. DIAND was unwilling to incorporate the Department's recommendations into the land use permits. This contrasts with water licences issued by the NWT Water Board into which the Department's recommendations were incorporated. The Department also had an opportunity to review draft authorizations before they were issued.

The Department of Municipal and Community Affairs generally followed the federal land use permits, but was supportive of the Department's concerns. Environmental conditions for the

Easement Agreement were also incorporated by the Department.

7.2.4 Successes, Failures, Costs

The time committed to the review and comments on the federal land use permits proved to be of little value. The Department of Renewable Resources was unable to convince DIAND to tie the Environmental Agreement and Environmental Protection Plan to the regulatory process. The standards provided in those documents would have been far better than those finally provided in the land use permits.

The Department of Renewable Resources and the Department of Municipal and Community Affairs cooperated to ensure adequate environmental protection was provided for Commissioner's Land.

7.2.5 Water Licensing Process

7.2.5.1 Departmental Involvement

The Department of Renewable Resources is a member of the Technical Advisory Committee (TAC) to the Northwest Territories Water Board. Through this committee, the Department reviewed project applications for water authorizations and water licences and provided advice relating to terms and conditions of such approvals.

7.2.5.2 Incorporation of Departmental Recommendations

All major concerns and recommendations raised by the Department which pertained to water licences and authorizations were addressed to our satisfaction by the Water Board.

7.2.5.3 Issues

Three major issues were identified in the water licensing process and are described as follows:

1) Water Authorizations

Section 26(g) of the Northern Inland Waters Act and paragraph 11 of the regulations, which set out the powers to authorize the use of water without a licence, were intended to be used in cases where water use would presumably have little environmental, social and economic impact. These water uses are generally temporary or small in scale such as diamond drilling, wharf and culvert construction and "minor" stream crossings for pipelines.

The Dene Nation and Metis Association opposed the process for issuing water authorizations on the grounds that there was no requirement for either the NWT Water Board or the public to be consulted in their issuance. The two organizations challenged the process and on February 7, 1984 the Federal Court of Canada ruled that paragraph 11 of the regulations

respecting inland water resources in the Yukon Territory and the Northwest Territories was ultra vires the Governor-in-Council. That is, paragraph 11 was beyond the legislative mandate of the Northern Inland Waters Act making water authorizations null and void.

The first winter of full-scale pipeline construction was in 1984. The court ruling raised the potential for a halt or delay of construction activities. This was averted when the Federal Cabinet amended the regulations to ensure that the rights of existing "authorized" water users were not interrupted.

IPL completed the project without any formal terms and conditions applying to water resources other than the two licenced river crossings. The company continued to comply with earlier terms and conditions, even though the authorizations were invalid.

RECOMMENDATIONS

23. Changes must be made to the Northern Inlands Water Act to ensure that short-term water uses are regulated.

2) Directional Drilling

Late in December 1983, IPL informed the Water Board that it was considering the use of directional drilling to cross the Great Bear River. The Water Board informed IPL that if it

decided to proceed, an amendment to the current licence would be required and, therefore, a public hearing necessary. Shortly thereafter, IPL requested an amendment to the Great Bear water licence emphasizing that the timeframe for construction was critical. However, IPL later dropped the directional drilling proposal in favour of conventional trenching methods for crossing the Great Bear River.

The directional drilling controversy points out two major faults with the handling of applications before the NWT Water Board. First, IPL was aware of the directional drilling technology when it first applied for the licence to cross the Great Bear River. The consideration of an amendment at the last moment suggests a lack of foresight. However, IPL could have originally applied for the water licence indicating that both construction techniques were being considered and obtained approval for them both, with appropriate terms and conditions. Then, depending on construction feasibility, it could have proceeded with either technique at its discretion as long as the appropriate terms and conditions were met.

Second, the water licensing process does not allow for accelerated amendments to a water licence in those cases where the change would prove to be less disruptive to the environment.

RECOMMENDATIONS

23. The NWT Water Board must be able to respond quickly to changes in water licences which could have fewer environmental effects. An "accelerated" amendment process should be considered to deal with situations like this.

3) Licence Compliance

Part D, Section 2 of both the Great Bear and Mackenzie rivers' water licences states:

> The Licensee shall have a contingency plan for the operational phase, in place and approved by the Board by June 1, 1985. This plan shall include but not be limited to the following:
>
> 1) Oil spill contingency plan;
> 2) Hazardous materials contingency plan; and
> 3) General contingency plan.

The intent of the June 1 deadline was to have an oil spill contingency plan approved and in place before the pipeline was put into operation. This would partially demonstrate IPL's preparedness to respond to an oil spill along the pipeline. Since line fill began March 6, 1985 and leave-to-open was granted April 17, 1985, the deadline had little

value.

A draft oil spill contingency plan was submitted to the Water Board in August 1984. The hazardous materials contingency plan and the general contingency plan were submitted to the Board on May 31, 1985. Although the latter two plans were submitted before June 1, 1985 there was no way that the Board could have received them and had them approved before that date. Technically, IPL complied with Part D, Section 2 of both water licences. However, the company failed to follow the intent of the licence to have a contingency plan approved and in place prior to leave-to-open. IPL should have submitted its plans at least four weeks prior to the deadline date to allow for a proper review by the Water Board.

Also contained in the two water licences is a condition requiring IPL to "undertake three oil spill recovery exercises during the first four years of the licence" (issued January 1, 1983). The Mackenzie River licence actually specifies that the exercises be "annual" ones. No exercises were carried out in 1983 or 1984. IPL's first oil spill exercise took place in June, 1985. This became a contentious issue with the native organizations. It appeared that the Water Board was unwilling to enforce the conditions of the water licences and that IPL was ill-prepared to protect the environment in the case of a pipeline rupture.

In response to this issue, IPL informed the Water Board on

May 13, 1985 of its intent to conduct 13 oil spill exercises over the following 12 months.

RECOMMENDATIONS

25. Plans and documents required under regulatory approvals must be tied to particular events to accommodate changes in project scheduling.

26. Since the Water Board requires a significant period of time to review licence documents such as contingency plans, water licences should specify dates for submission of these documents to allow for a proper review by the Board and ensure that approved documents are in place when they are required (e.g., operation phase for contingency plans).

27. Regulatory agencies must be willing to enforce terms and conditions of regulatory approvals if they wish to remain credible.

7.3 Construction

7.3.1 Regulatory Procedures

During the first winter of pipeline construction, numerous land use permit amendments were made by DIAND officials for off right-of-way activities. Many were made in the field without nctification or consultation with Renewable Resources staff. The problem of verbal permit amendments

extended to areas such as timber harvest sites and spoil disposal areas. In one particular case, timber harvesting operations were taking place in a raptor protection zone without the Department's knowledge. Renewable Resources recommended that "all future amendment requests of this nature be addressed by the Land Use Advisory Committee".

During the second winter of construction, weekly field meetings were held in Fort Simpson for project regulators to discuss construction progress, project changes and environmental concerns. Communication and cooperation among the various regulators improved as did understanding of roles and responsibilities.

Communities and native organizations were neither consulted nor advised of project changes and permit amendments.

RECOMMENDATIONS

28. Through the Land Use Advisory Committee, all regulatory agencies must be kept informed of permit amendments to allow for a proper review and assessment of potential impacts.

7.3.2 Surveillance

7.3.2.1 Departmental Involvement

The Department of Renewable Resources employed two full-time Renewable Resource Officers on the Norman Wells Project.

Occasional field support was also provided by resident Renewable Resource Officers in Norman Wells and Fort Simpson and the Field Supervisor based in Yellowknife.

Although the Department was not a major regulator on the project, Renewable Resource Officers performed daily inspections during project construction, enforcing regulations under the Wildlife Act and the Environmental Protection Act.

The Department of Municipal and Community Affairs (MACA) is responsible for enforcing land use operating conditions for the Norman Wells and Fort Simpson Block Land Transfers. MACA's Land Management Officer carried out this task during the first winter of pipeline construction. This position was vacant during the second year of construction and inspection powers were transferred to the Department of Renewable Resources.

7.3.2.2 Departmental Liaison

Departmental staff worked cooperatively with other government environmental inspectors to inform the appropriate agency when infractions outside their mandate were observed.

Early in the project, communication among inspectors was poor. The Norman Wells Project Coordination Office in Fort Simpson alleviated the problem by holding weekly meetings of

government and industry inspectors. The meetings continued through the second winter construction period and proved to be most successful.

For the most part, IPL and ESSO cooperated with the Department. IPL employed highly qualified inspection staff, many of whom had worked on previous pipeline projects. At the working level, IPL and its consultants provided information and assistance when requested. IPL's Yellowknife office was helpful in providing information and organizing meetings when they were requested.

RECOMMENDATIONS

29. Regular meetings for field inspectors should be started prior to project construction to establish good communication and cooperation among environmental personnel and allow for an understanding of roles and responsibilities.

7.3.2.3 Program Delivery

The Department of Renewable Resources received less funding than it required for its surveillance program. Renewable Resource Officers were limited to ground travel throughout the construction of the pipeline. When emergency situations, such as nuisance bears or fuel spills, were reported, Departmental staff had to rely on cooperative arrangements

with government or industry for air support.

It was felt that a sufficient number of field staff were assigned to the project to carry out the Department's surveillance program.

RECOMMENDATIONS

30. For future projects of this size, the Department of Renewable Resources will continue to require supplementary funding to hire project personnel and carry out environmental monitoring programs.

31. The coordination of surveillance and monitoring activities during construction should be the responsibility of an environmental supervisor located in the field.

7.3.2.4 Issues

1) Project Regulation

Inspection on the Norman Wells Pipeline was the responsibility of several government agencies and IPL. Not only was IPL responsible for complying with all project permits, authorizations, licences and applicable environmental legislation, but also its own Environmental Protection Plan.

The company was a conscientious corporate citizen and worked hard to live up to its environmental obligations.

The National Energy Board brought in its own southern field staff consisting of a coordinator, one geotechnical inspector per spread and one roving environmental inspector for the project. Staff were rotated between Ottawa and the field, and to this date, we are still not clear what the NEB's inspection program was.

Many of the project regulators chose to act independently of others in carrying out their field inspections. There was little opportunity to learn from other inspectors and make efficient use of manpower and operating costs. With a large number of inspectors on the project (from NEB, DIAND, DFO, GNWT and IPL), it is not surprising that environmental problems were few. The Department of Renewable Resources laid no charges, but one warning was issued during the winter of 1984/85 when a beaver lodge was destroyed by one of IPL's construction contractors without proper authorization.

The Department's field staff were well trained and prepared for the pipeline project. Several of the regulatory agencies, including the Department of Renewable Resources, did not staff all the field positions they originally proposed, since work requirements were not as great as expected. As construction proceeded, it became evident that IPL and their inspection staff were quite capable of self-

regulating the project. Although IPL felt the project was over-regulated, government agencies used the project to expose field staff to a major development project.

RECOMMENDATIONS

32. The GNWT should examine other models (e.g., an interagency approach similar to the Alaskan "Joint Fish And Wildlife Advisory Team") for project surveillance to reduce duplication of effort and to lower costs.

33. The GNWT and other project regulators should work more cooperatively and conduct joint field inspections. All inspection staff, including the NEB, should be based in the North.

2) Wood Chips

Interprovincial Pipe Line's proposal to use wood chips to insulate ice-rich, thaw sensitive slopes was initially met with opposition by both the Territorial and Federal governments. The Department of Renewable Resources was concerned because the technique had never been used in pipeline construction. Concern was raised over the possibility that wood chips would enter water courses and adversely affect water quality (e.g., drinking water at Norman Wells) and fish resources. Wildlife habitat would

also be altered from clear cutting timber blocks. Should this "experimental" technique not perform as IPL has predicted, slope stability and pipeline integrity will be at stake.

Several meetings were held to discuss the wood chip proposal. In Edmonton on June 7, 1983, the Department of Renewable Resources and other Territorial Government representatives met with the company, its consultants and other project regulators to discuss the technique. A representative from the Department of Municipal and Community Affairs recommended that IPL experiment with the technique at a test site. Due to time constraints, IPL was unwilling to test wood chips in an experimental situation. Renewable Resources did withdraw its objection and favoured using a renewable resource (timber) rather than a non-renewable resource (gravel), but only after much deliberation. The timber cutting guidelines prepared were designed to enhance the quality of wildlife habitat within the cut blocks.

Many changes to the chipping program were required as construction of the pipeline proceeded. Right-of-way clearing took place with no consideration for using the timber removed. As indicated in a DIAND report, "... had chipping coincided with the clearing of the right-of-way, more than sufficient softwood volume could have been gleaned from the spoils".

In support of the wood chip program, IPL identified 17 timber harvest sites for the 1983/84 winter construction period. Soon after harvesting began, it was realized that it was not practicable to use trees with a diameter of less than 20cm. This criterion ruled out most of the timber sites under permit to IPL. Only two of the original sites were used. Changes to timber and wood chip requirements were made as experience with the technique was gained. Mature stands of trees were selectively cut producing more desireable cut blocks for wildlife.

In most cases, the Department of Renewable Resources was not consulted on permit amendments for new timber harvest sites during the first winter of construction. In the second winter, field design changes were significantly fewer and the Department was asked to comment on permit amendments.

While there is still some local concern about the effectiveness of woodchips to insulate slopes, early results from ground monitoring by EMR, DIAND, and IPL indicate that the chips are performing as expected. Longer term concerns regarding maintenance, slope stability and restoration have not yet been resolved.

RECOMMENDATIONS

34. The proponents of large-scale development projects must be willing to test new construction techniques in experimental situations before applying them to actual projects. This will help to identify problems with the technique and determine its feasibility.

3) Fuel Spills

During the first winter of pipeline construction, both government and industry encountered problems related to fuel spills. Government (DIAND and DRR) did not have a clear understanding of their areas of jurisdiction, and industry was not adequately prepared to respond to emergency situations. A case in point is the fuel spill which occurred at Bear Rock in January, 1984. Matco Transportation Systems, a common carrier, was hauling fuel destined for an IPL construction camp. A fuel spill occurred when a tanker truck overturned on the winter road between Fort Norman and Norman Wells. DIAND believed that it was their responsibility to respond since the winter road was being operated under a land use permit issued by the Federal Government. Even though the winter road is a territorial highway and the GNWT's responsibility, an unwritten agreement between the two governments gave DIAND the lead role as the responding agency.

IPL and its contractors knew of their legal responsibilities for spills on the project. Spills on land under permit to IPL or its contractors are the proponent's responsibility. The company may be morally obliged to assist in other situations, but there is no legal requirement to do so. IPL and PeBen Pipelines failed to provide assistance to Matco when it was requested.

A fuel spill at Shale Creek near Fort Simpson also indicated that IPL and its contractors experienced difficulties in responding to fuel spills. The GNWT experienced attitude problems and was not satisfied with PeBen's initial clean-up action. Clean-up procedures did not conform to IPL's Oil Spill Contingency Plan. Although IPL may have had the best of intentions, it is the contractors who must be responsible for their own actions when it comes to environmental emergencies. The Norman Wells Project showed that there can be a marked difference in worked performed on the same project by different contractors.

These two examples illustrate that government and industry must be better prepared in areas such as contingency planning on future development projects.

Oil spill contingency plans for the Norman Wells Project still concern the Mackenzie Valley communities. Land use information is being collected by the Department of Renewable Resources and the communities to provide better information

to protect the environment in the case of an oil spill.

RECOMMENDATIONS

35. The proponent must take full responsibility for its contractors and sub-contractors and ensure that they comply with all the terms and conditions of the project's regulatory approvals.

36. The Territorial and Federal governments need to come to a clearer understanding of roles and responsibilities for responding to environmental emergencies such as fuel or chemical spills.

(In 1986, the Territorial and Federal governments signed a Working Agreement on Government Response to Spills in the N.W.T. which clarifies the roles and responsibilities of responding agencies.

37. The Department of Renewable Resources should continue to collect land use and harvest information to assist in better contingency planning, environmental protection and impact assessment.

4) Wildlife Problems

Construction of the Norman Wells Pipeline during the winter months minimized wildlife conflicts. Renewable Resource Officers monitored IPL's construction camps and right-of-way

activities. Although wildlife/human interactions were few, construction workers were known to be feeding wildlife. Lunch bags were left on the right-of-way and camp personnel were reported to be feeding wolves, foxes and ravens.

Feeding of wildlife continues to be a problem on development projects. Posters and notices were displayed in the camps to warn project personnel about the safety and health hazards involved in this practice.

Road kills during project construction were considered to be minimal. Renewable Resource Officers reported only one red fox and one wolf killed by vehicle collisions over the two winter construction seasons.

Facility site development during the summer months has a greater potential for attracting nuisance wildlife. Black bears were attracted to camps mainly due to improper garbage disposal. At Camp 585 for example, a garbage problem developed because the camp incinerator was not functional when the camp was first opened.

Our records indicate that two black bears were killed by company personnel at construction camps. Company regulations prohibiting workers from possessing firearms in camp were effective in preventing unnecessary wildlife kills.

Black bears were also attracted to ESSO's camps and rig sites

at Norman Wells during the expansion project. From 1984 to 1985, only two black bears were shot by Renewable Resource Officers in town, but 20 were relocated. Prior to the expansion project, as many as eight bears were killed each year (R. Bullion pers. comm.). As a result of an effective bear deterrent program, the number of bears destroyed by Officers during the project was reduced considerably.

Hunting pressure increased in the Norman Wells area as completion of the Oilfield Expansion Project approached. Contractors and workers who established themselves in Norman Wells at the beginning of the project could obtain sport hunting licences two years later. Residents are believed to have more leisure time in the operation phase of the project to spend on recreational activities such as sport hunting. The number of resident sport hunting licences sold in 1983 and 1984 nearly doubled that of the three previous years (1980 to 1982).

Harvest figures for moose in the Norman Wells area also show a two-fold increase in 1984. GHL moose harvest estimates suggest similar increases over the past several years (R. Bullion pers. comm.). This increase may be the result of northern hiring practices attracting GHL holders from other communities to live and work in Norman Wells.

RECOMMENDATIONS

38. The Department of Renewable Resources should continue to develop and implement educational programs to help minimize wildlife problems and environmental impacts associated with development projects. Renewable Resource Officers and professional staff with the Department should participate in training programs.

39. The Department of Renewable Resources should continue to develop and implement deterrent programs for nuisance wildlife.

5) Trapper Compensation and Consultation

Both the GNWT and IPL developed trapper compensation policies for the Norman Wells Project. Government and industry representatives held regular meetings in the communities along the pipeline route to discuss pipeline activities, impacts and harvester compensation. Three compensation claims were filed and in two other situations, individuals met with IPL to discuss hunting and trapping concerns, but did not make a claim. Renewable Resource Officers were in a position to act as resource persons and assist harvesters with compensation claims, but were not requested to do so. IPL made it known that they did not want the Officers assisting in the preparation of compensation claims. Resident field staff also had reservations about being put in

a situation where they had to make a judgement about the validity of a claim.

The three claims filed with IPL were settled quickly to both parties' satisfaction.

Community meetings on compensation revealed that there were many concerns about how trapper compensation would work. On two occasions, "community" claims were discussed, but IPL's policy was only intended to deal with trappers on an individual basis. In Fort Norman, the Hunters and Trappers Association wanted to know how one would determine the value of a moose which includes meat, handicraft income and loss of future productivity. Loss of hunting privileges as a compensation issue was also discussed.

The policies in general, were considered to be inadequate by several of the communities along the pipeline route. Communities want an active role in negotiating terms and conditions for development projects, including renewable resource compensation.

Concern over IPL's approach to community consultation was also raised by several communities. Meetings were held at IPL's convenience and were rarely well attended. Resident Renewable Resource Officers were able to encourage better communication by combining pipeline meetings with other work and by attending meetings called by the communities.

RECOMMENDATIONS

40. Industry and government should examine a new approach to community consultation. The consultation process should be a coordinated effort designed to meet the communities' needs.

41. Government must encourage community participation in developing compensation plans for development projects. It is recommended that communities be involved in the approval of the plan before the project begins.

6) Environmental Standards

Environmental standards for construction of the Norman Wells Pipeline were considered to be high. In addition to the numerous regulatory permits, authorizations and government statutes, the Company signed an Environmental Agreement and produced an Environmental Protection Plan which outlined its commitment to minimize environmental impacts.

During the first winter of pipeline construction, it became evident that other development projects in the Mackenzie Valley were being carried out with lesser degrees of environmental protection, raising claims of double standard, particularly on Territorial Government projects. In one particular case, the GNWT's Department of Public Works, did not even have a land use permit for road construction.

Environmental standards for seismic operations in the Valley were also questioned. Since DIAND sets the operating conditions on federal lands in the form of land use permits, the problem from their perspective was one of lack of enforcement and non-compliance by the contractors. The responsibility lies with DIAND land use inspectors to ensure that there is conformity with established standards in every case.

With respect to DPW winter operations, the Department of Fisheries and Oceans (DFO) was particularly concerned about construction and clean-up practices of winter roads at stream crossings. In 1983, the GNWT's Chief of Highways assured DFO that DPW operations would improve. In the next winter of road construction (1983/84), the problem became worse. The issue was resolved at a meeting with DIAND, DFO and DPW personnel in the summer of 1984 and DPW's operations improved considerably in the winter of 1984/85. DFO made it clear that improper construction of stream crossings and insufficient clean-up, which may have had serious impacts on fish habitat, would no longer be tolerated.

RECOMMENDATIONS

42. Government must recognize the need to establish high standards of environmental operating procedures and ensure that there is an adequate level of enforcement to

ensure compliance with the standards in every case (including their own operations).

7.3.2.5 Successes, Failures, Costs

The Norman Wells Project was a learning experience for the Department of Renewable Resources. Field staff were able to influence the quality of work done on the project by enforcing environmental standards set for the project. Overlapping mandates reduced our effectiveness in areas such as wildlife habitat management where the GNWT did not have administrative control over the land. In an advisory capacity, the Department was able to assist other regulators in their inspection duties. It is felt that the Department made a significant contribution in the area of impact management. Experience was gained in pipeline construction techniques, environmental land management and pollution control. Weaknesses were identified in Territorial Government legislation - in areas of pollution control, land management, and wildlife and habitat management. Officers maintained good communication with the communities and people living on the land, and industry and government personnel associated with the project. The Department's involvement in the project increased our awareness of and ability to respond to non-pipeline environmental concerns in the Mackenzie Valley.

As a minor regulator on the project, the Department had little influence over other regulators' management approach to the project.

The Department's costs to participate in project regulation were greater than was provided for by impact funding. Resident Renewable Resource Officers spent a significant portion of their time working on the Norman Wells Project at the expense of other projects. These people too, however, learned from their experience with the project.

7.3.3 Environmental Monitoring

7.3.3.1 Departmental Involvement

At the request of the Department of Renewable Resources, an ad hoc research and monitoring working group was established in September 1982, to develop and implement a research and monitoring program for the Norman Wells Project. Since that time, research and monitoring programs have been initiated by the Federal and Territorial governments, ESSO Resources, IPL, and most recently, the Dene Nation.

The Department's Pipeline Monitoring Biologist is the GNWT member of the Norman Wells Research and Monitoring Group. Departmental programs were designed and implemented to determine short-term impacts of the pipeline project on terrestrial wildlife (i.e., ungulates and furbearers), raptors and renewable resource harvesters.

7.3.3.2 Liaison and Cooperation with Other Agencies

The approach taken by the Norman Wells Research and Monitoring Group, of examining key or indicator species, left little opportunity for researchers to cooperate on field projects. Field schedules and study areas rarely permitted coordination. Communication and information exchange among government personnel was generally good. Early Research and Monitoring Group meetings provided an opportunity for participants to establish good working relationships and review one another's program proposals. Renewable Resources benefitted from other government agencies collecting wildlife information during construction of the pipeline.

7.3.3.3 Liaison and Cooperation with Industry

The Department of Renewable Resources' participation in the National Energy Board's intervenor process provided an early opportunity to establish a good working relationship with IPL staff and consultants. Despite a rocky start, this continued through the construction phase of the project. The Department negotiated directly with IPL on matters such as environmental monitoring programs. In August 1984, the Department of Renewable Resources signed a cooperative wildlife agreement with IPL. The company contributed to the Department's monitoring program by providing logistic support and wildlife data it had collected from its own monitoring

program. IPL's wildlife studies helped to expand the scope of the Department's monitoring program as well as contribute to its general enhancement.

7.3.3.4 Program Delivery

Estimates of environmental monitoring needs prior to project start-up were approximately $150,000 per year for five years (1983/84 to 1987/88). Such funds were required to implement programs to address the concerns and recommendations of the EARP and NEB hearings. Monies allocated to the Department through Norman Wells impact funding were considerably less than originally required to complete the proposed monitoring studies. Additional funding was not secured and the studies were re-designed in line with impact funding received. Environmental monitoring expenditures for the project amounted to less than 25 percent of what was originally proposed. Limited funds severly reduced the Department's ability to develop a comprehensive, long-term environmental monitoring program.

RECOMMENDATIONS

43. The Department of Renewable Resources should continue to develop and implement research and monitoring programs to determine short and long-term impacts of major development projects in the North.

44. Where long-term monitoring studies are required, the Department of Renewable Resources must commit A-base funds to the project and ensure its continued support.

At the present time, the Department of Renewable Resources is continuing to support several environmental monitoring studies initiated during construction of the Norman Wells pipeline.

7.3.3.5 Effectiveness

The Department of Renewable Resources did not make effective use of the two year lead time to establish monitoring programs, due mainly to time constraints imposed by the National Energy Board's conditional approval process. In general, other agencies did not use the lead time satisfactorily either.

Monitoring programs put in place by the Department for the construction and post-construction periods will meet the study objectives. The Department successfully carried out cooperative work with industry and was able to use community workers to assist in field work. Field experience was gained by all personnel involved in the project. Community consultation was an important aspect of field work, and kept local people informed of the Department's roles, responsibilities and programs for the project.

RECOMMENDATIONS

45. Impact studies, which require pre-construction baseline information, must be developed, funded and implemented with sufficient lead time prior to project construction.

7.3.3.6 Issues

1) Norman Wells Research and Monitoring Group

As the Norman Wells Project got underway, ad hoc environmental working groups and committees proliferated. The Norman Wells Research and Monitoring Group proposed research and monitoring programs developed from a set of priority environmental issues identified by its members. Government interest in monitoring was intially high, but many of the proposed studies required supplementary funding which was never secured. The timing of funding availability and program development and implementation limited the success of monitoring efforts. Several government agencies did not consider Norman Wells to be a high priority. Person years were not available and neither were A-base funds. Where external funds were sought, they were slow in coming. As late as 1985, some studies were just getting underway (e.g., EPS' water quality study) and others were still waiting for possible funding (e.g., DFO/Dene Nation fish study).

Rather than take an ecological approach to environmental

monitoring, researchers chose to develop independent programs using indicator species. The working group then attempted to "ensure a common level of detail for each project and develop a coordinated program plan in order to reduce logistic overload". In reality, however, the group provided only a mechanism for information exchange and distribution.

Early on in the project, several members of the working group recommended the formation of an environmental response team similar to the Alaskan Joint Fish and Wildlife Advisory Team. The same suggestion was made by Renewable Resources in the EARP hearings. It is not known why the proposal was not examined.

Environmental monitoring has been an issue with the Dene Nation since project approval in August, 1981. The Dene wanted an active role in monitoring but funds were not available until construction of the pipeline was well underway. Members of the Norman Wells Research and Monitoring Group were asked to consider involving community people in their scientific research and monitoring projects. Researchers concluded that there was little opportunity for native involvement in their studies. Both Renewable Resources and IPL were able to use some local assistance in their wildlife monitoring programs. The Dene Nation's solution to the problem was community based monitoring. Local people were trained as environmental monitors but

again, little work was available. A cooperative study was initiated by the Dene Nation and the Department of Fisheries and Oceans to examine the problem of poor quality fish being taken from the lower Mackenzie River. This type of cooperation with the communities has been rare. The joint DFO/Dene Nation study has allowed the Dene to participate in the formation and implementation of a project designed to address a well defined community concern.

2) Other Ad Hoc Committees

a) Norman Wells Project Joint Environmental Working Group (NWPJEWG)

In response to the Dene Nation's request for a Dene monitoring agency, another ad hoc working group was formed for the Norman Wells Project. The Dene wanted "significant native participation in regulatory decision making and monitoring" for the project. Since no other committee had overall coordination of all monitoring efforts, the new working group was formed. Representatives from the Dene Nation, Metis Association, DIAND and GNWT formed the membership, with observer status going to IPL, ESSO and the NEB. Administrative support was provided by the Federal Government's Project Coordination Office, who also chaired the meetings. The group was officially formed in December, 1983. The group met regularly for the remainder of the construction of the pipeline. Members were closely involved

with the project and identified environmental concerns and put forth recommendations for possible action. The working group successfully resolved most environmental concerns referred to it.

RECOMMENDATIONS

46. Environmental monitoring should be a joint responsibility of government, industry, aboriginal groups and the public. Monitoring efforts need to be coordinated by a single group or agency.

b) Federal Government's Tripartite Group

Under the Environmental Agreement between DIAND and IPL, a tripartite group (DIAND, IPL and the NEB) was formed to review individual government agency requests for logistic support and cooperation from IPL. Information was distributed to members of the Regional Environmental Review Committee, a committee which had very little involvement in the project. The tripartite group served little purpose, except providing information to agencies which did not have regulatory control over the project. Rather than work through yet another committee, the GNWT chose to deal directly with IPL on environmental monitoring matters. This arrangement proved to be satisfactory to IPL and the GNWT.

3) IPL's Monitoring Program

The first indication of IPL's intention to conduct environmental monitoring work was contained in a September 1983 report entitled "Outline of Procedures and Schedules for Post-Construction Monitoring". IPL was given little direction for its monitoring program except by the general National Energy Board requirements of OC-35. The company's program included no pre-construction baseline studies and was narrowly defined to deal mainly with environmental change along the right-of-way. Environmental monitoring was not a requirement of the Federal Government. The GNWT recommended a requirement for monitoring be included in the mainline land use permit but this was not accepted. The Territorial Government did, however, include a clause in the Norman Wells Development Permit on environmental monitoring.

IPL's reluctance to initiate monitoring programs at an early stage in the project was a result of the fact that leave-to-construct was considered necessary before the company would consider any studies at all. Monitoring programs developed by the Norman Wells Research and Monitoring Group were well underway by the time IPL became active.

Although IPL should have planned their environmental monitoring programs at an earlier stage, meaningful programs were jointly developed and implemented through cooperation between the company and the GNWT.

RECOMMENDATIONS

47. Industry must cooperate with other parties who do environmental monitoring work and participate in the design and implementation of environmental monitoring programs prior to project construction.

7.3.3.7 Successes, Failures and Costs

The Department of Renewable Resources was successful in stimulating interest in environmental monitoring for the Norman Wells Project. Although the research and monitoring program developed by the working group did not take an integrated approach, research and monitoring programs were put in place to address the major concerns associated with the project. The Department's pipeline monitoring biologist was able to work with the project's Renewable Resource Officers and the communities to implement monitoring programs and resolve conflicts as they arose. It was beneficial for the Department to enter into a cooperative wildlife monitoring agreement with IPL since program funds for the Department were minimal. Without sufficient lead time or funds to conduct pre-construction baseline studies, it was impossible to develop a comprehensive environmental monitoring program to determine pipeline impacts on wildlife and its users. Short-term studies are completed and only one study on raptors is continuing.

Renewable Resource Officers are responsible for surveillance and enforcement programs during operation of the pipeline. Our involvement in the various environmental committees has been effective in resolving environmental problems. Much of the Department's involvement in the project was a learning experience. All staff gained valuable experience which will better prepare the Department for future development projects in the north.

8. CONCLUSIONS

The Norman Wells Project was the first large-scale, non-renewable resource development project in which the Department of Renewable Resources became fully involved. It was a learning experience for all participants.

The authors feel that they met the objectives of the evaluation as listed in Section 4 of this report. The evaluation provides a number of recommendations for the Department and other agencies to improve their performance on future development projects.

As indicated by the recommendations, few problems were encountered during construction of the project. This was mainly due to the efficient manner in which IPL, ESSO and their consultants conducted themselves. Generally, the Department feels that the companies met their obligations to minimize environmental impacts. IPL and ESSO have set high standards for the proponents of future development projects.

The Department feels that the EARP and NEB hearings were effective, but there is room for improvement. The conditional approval process which followed the NEB hearings caused considerable difficulty for most participants but could be more effective in addressing project issues. Although construction went smoothly, several problems were encountered in the regulatory review process. It is our hope

that the recommendations provided in this report will help to resolve many of these problems.

9. SUMMARY OF RECOMMENDATIONS

Hearings

1. Witnesses, even those presenting policy, must adhere to strict deadlines and file evidence in advance of their appearance. Witnesses should be assisted with evidence preparation but should be required to take some responsibility upon themselves.

2. The Department of Renewable Resources will increase its efficiency and effectiveness if it clearly focuses on what it wants to accomplish from participating in the hearing.

3. The individual(s) coordinating input from the Department or the GNWT as a whole, must be experienced and trained to assist expert witnesses. The Department should continue to provide the opportunity for training in the presentation of environmental evidence.

4. For participation in future hearings, the Department should direct its analysis of issues towards Departmental objectives and the terms of reference of the hearing. This will increase work efficiency and provide more satisfactory results. Issues to be avoided include the "baseline studies" type that are entirely within the Department's mandate.

5. At future hearings, consideration should be given to presenting an expert witness to discuss the Department's experience with the Norman Wells Project.

Land Use Planning

6. Given recent Beaufort Sea developments and the possibility of another pipeline down the Mackenzie Valley, it is recommended that a regional land use planning commission be established for the Mackenzie Valley and a land use plan prepared prior to project approval.

Supplementary Studies

7. Input into the terms of reference to supplementary studies should be invited from interested intervenors and regulators.

8. Reports produced during the conditional approval process should be reviewed by regulators as well as intervenors. Informal meetings to discuss draft supplementary reports should be encouraged.

9. When issues that originate outside the technical competence of the Department (such as the use of wood chips to insulate thaw sensitive slopes) have environmental implications, the Department should

seek external technical advice.

10. The timeframe for all submissions within the conditional approval process should be negotiated by the proponent and regulators with input from intervenors.

Environmental Protection Plans (EPP)

11. The Environmental Protection Plan should have clear terms of reference. The document should be produced by the proponent and revised as necessary by all interested parties, including project regulators. Changes to the plan will be required as experience from the project is gained.

12. The EPP should be tied to the regulatory process. It should be the single enforcement document used by all authorities. All current project regulation and agreements should be included in the document.

13. The EPP must contain protection measures at least as stringent as the environmental regulations applied to the project, including those under applicable permits, authorizations and agreements. It should also contain contingency plans.

Public Approval Process

14. Intervenors should have better access to project-

related information. The National Energy Board should be required to have an office in the North during future projects to provide better access to Board staff and information.

15. The Government of the Northwest Territories should pursue direct representation on the National Energy Board.

Impact Funding

16. For large-scale projects like Norman Wells, the Department of Renewable Resources requires supplementary funding to participate in project management and impact management activities. Funding must be provided early in the project.

17. The Department of Renewable Resources should use its Norman Wells experience to assess its funding requirements to participate in future development projects.

18. During project construction, all Departmental staff should be required to keep track of any time spent on project-related activities. This will allow for a more accurate determination of time spent on the project and Departmental costs.

Project Regulation

19. The Department should consider using contractual documents (e.g., agreements) to incorporate environmental and socio-economic concerns as part of the project approval process. Where possible, government agencies must incorporate terms and conditions of the agreements into their regulatory approvals.

20. The Land Use Advisory Committee should participate in developing terms and conditions for project permits rather than acting strictly in an advisory capacity.

21. There should be better interagency cooperation in developing permit terms and conditions regardless of mandate.

22. The Government of the Northwest Territories should implement land use regulations under the Commisssioner's Land Act.

23. Changes must be made to the Northern Inland Waters Act to ensure that short-term water uses are regulated.

24. The NWT Water Board must be able to respond quickly to changes in water licences which could have fewer environmental effects. An "accelerated" amendment process should be considered to deal with situations like this.

25. Plans and documents required under regulatory approvals must be tied to particular events to accommodate changes in project scheduling.

26. Since the Water Board requires a significant period of time to review licence documents such as contingency plans, water licences should specify dates for submission of these documents to allow for a proper review by the Board and ensure that approved documents are in place when they are required.

27. Regulatory agencies must be willing to enforce terms and conditions of regulatory approvals if they wish to remain credible.

28. Through the Land Use Advisory Committee, all regulatory agencies must be kept informed of permit amendments to allow for proper review and assessment of potential impacts.

29. Regular meetings for field inspectors should be started prior to project construction to establish good communication and cooperation among environmental personnel and to allow for an understanding of roles and responsibilities.

30. For future projects of this size, the Department of Renewable Resources will continue to require supplementary funding to hire project personnel and carry out environmental monitoring programs.

31. The coordination of surveillance and monitoring activities during construction should be the responsibility of an environmental supervisor located in the field.

32. The GNWT should examine other models for project surveillance to reduce duplication of effort and to lower costs.

33. The GNWT and other project regulators should work more cooperatively and conduct joint field inspections. All inspection staff, including the NEB, should be based in the North.

Environmental Protection, Conservation Education and Wildlife Management

34. The proponents of large-scale development projects must be willing to test new construction techniques in experimental situations before applying them to development projects. This will help to identify problems with the technique and determine its feasibility.

35. The proponent must take full responsibility for its contractors and sub-contractors and ensure that they comply with all the terms and conditions of the project's regulatory approvals.

36. The Territorial and Federal governments need to come to a clearer understanding of roles and responsibilities for responding to environmental emergencies such as fuel or chemical spills.

37. The Department of Renewable Resources should continue to collect land use and harvest information to assist in better contingency planning, environmental protection and impact assessment.

38. The Department of Renewable Resources should continue to develop and implement educational programs to help minimize wildlife problems and environmental impacts associated with development projects. Renewable Resource Officers and professional staff with the Department should participate in training programs.

39. The Department of Renewable Resources should continue to develop and implement deterrent programs for nuisance wildlife.

Consultation and Compensation

40. Industry and government should examine a new approach to community consultation. The consultation process should be a coordinated effort designed to meet the communities' needs.

41. Government must encourage community participation in developing compensation plans for development projects. It is recommended that communities be involved in the approval of the plan before the project begins.

Environmental Standards

42. Government must recognize the need to establish high standards of environmental operating procedures and ensure that there is an adequate level of enforcement to ensure compliance with the standards in every case.

Environmental Monitoring

43. The Department of Renewable Resources should continue to develop and implement research and monitoring programs to determine short and long-term impacts of major development projects in the North.

44. Where long-term monitoring studies are required, the Department of Renewable Resources must commit A-base funds to the project and ensure its continued support.

45. Impact studies which require pre-construction baseline information, must be developed, funded and implemented with sufficient lead time prior to project construction.

46. Environmental monitoring should be a joint responsibility of government, industry, aboriginal groups and the public. Monitoring efforts need to be coordinated by a single group or agency.

47. Industry must cooperate with other parties who do environmental monitoring work and participate in the design and implementation of environmental monitoring programs prior to project construction.

ACKNOWLEDGEMENTS

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1) Norman Wells Project Coordination Office;
2) Department of Indian and Northern Affairs;
3) Department of Environment;
4) Department of Fisheries and Oceans;
5) ESSO;
6) Dene Nation;
7) Metis Association;
8) Department of Municipal and Community Affairs; and
9) Department of Renewable Resources.

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PERSONAL COMMUNICATIONS

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APPENDIX I

SEQUENCE OF MAJOR EVENTS

APPENDIX I - SEQUENCE OF MAJOR EVENTS

1978

January : ESSO carries out seismic and drilling activities to delineate the Norman Wells oilfield.

1979

June : ESSO initiates discussions of oilfield expansion and transportation of the product with DIAND.

1980

February : DIAND refers the project proposal to the Federal Environmental Assessment Review Office (FEARO).

March : Interprovincial Pipeline (IPL) applies to the National Energy Board (NEB) for pipeline approval.
IPL applies to DIAND for land tenure.

April : ESSO and IPL submit a joint Environmental Impact Statement (EIS) to FEARO.
IPL files an application with the NWT Water Board to cross the Great Bear and Mackenzie rivers.

May : Department of Renewable Resources (DRR) decides to participate in the EARP hearings.
EARP panel assembled.
ESSO applies to NWT Water Board for a water licence to construct artificial islands and develop the oilfield.

June : DRR hires a consultant to identify issues.

August : EARP holds 12 community hearings in the NWT.
DRR participates in the Yellowknife EARP hearings.

October - November : NEB holds hearings in Edmonton, Yellowknife, and Ottawa.
DRR participates in the NEB hearings in Edmonton and Yellowknife.

1981

January : EARP report released.

February : NWT Water Board holds public hearings in Norman Wells and Ft. Good Hope for a water licence to construct artificial islands.

March : NEB releases its "Reasons for Decision".

June : NWT Water Board holds public hearings in Inuvik and Ft. MacPherson for a water licence to construct artificial islands.

July : Minister of DIAND announces conditional approval of the oilfield and pipeline project - 2 year delay.
DIAND approves 21 million dollars in impact funding - 3 million to the GNWT.

November : NEB issues Certificate of Public Convenience and Necessity No. 35 to IPL. The list of required supplementary studies is released.

December : NWT Water Board holds public hearings in Ft Simpson and Ft. Norman for the Mackenzie and Great Bear river crossings.

1982

June : IPL begins filing supplementary studies with the NEB for intervenor review.
DRR establishes a formal arrangement with DOE and DFO to review IPL's supplementary environmental studies.

July : GNWT Project Coordination Office is established.
DRR hires a Field Supervisor for the project.
DRR provides input into Mackenzie and Great Bear river crossings through the Technical Advisory Committee (TAC) to the Water Board.

August : DRR proposes an intergovernmental research and monitoring program for the project.
DRR reviews a draft water licence for the Mackenzie and Great Bear river crossings.

September: Norman Wells Research and Monitoring Group officially formed to develop and implement a research and monitoring program for the project.
Easement Agreement for Commissioner's Land at Norman Wells and Ft. Simpson is signed.
Environmental Agreement between DIAND and IPL is signed.
DRR hires a Renewable Resource Officer for posting in Norman Wells.

October : DRR hires a Pipeline Monitoring Biologist.

November : IPL files an Environmental Protection Plan (EPP) for winter clearing and site development.
IPL applies for a land use permit for construction camp at Kp 78.

December : NEB approves IPL's EPP for winter clearing and for site development.
DRR begins implementing environmental monitoring programs.

1983

January : Artificial island construction and pipeline right-of-way clearing commence.

February : NWT Water Board issues a water licence for summer construction of the Great Bear River crossing.
Water licence for summer construction of the Mackenzie River crossing is issued.
Winter facility site development begins.
IPL files an Environmental Procedures Manual (EPM) for construction with the NEB.
IPL considers using wood chips to insulate thaw sensitive slopes.

March : DRR meets with IPL in Edmonton to review the EPM.

April : NEB issues leave-to-construct to IPL.
IPL states its intent to produce an Environmental Protection Plan for construction.
DRR reviews IPL's wood chip proposal.
DRR provides IPL with timber cutting guidelines.

May : NEB approves IPL's EPM for construction (including contingency plans).
DRR assists DIAND draw up the mainline land use permit for federal lands.
DRR reviews IPL's application for water authorizations for stream crossings through TAC.
After three budget cuts, DRR's project budget is reduced from 1.5 million to 980,000 dollars.

June : GNWT issues a development permit for mainline construction within the Norman Wells Block Land Transfer (BLT).
IPL begins summer facility site development.
DRR provides DIAND with the same timber cutting guidelines.
DRR meets with project regulators and IPL in Edmonton to discuss the wood chip proposal.
NEB approves IPL's wood chip proposal.

August : NWT Water Board issues water authorizations for stream crossings.
DRR provides input to LUAC at a meeting to discuss wood chips.
IPL submits its oil spill contingency plan to DIAND.
DIAND approves the use of wood chips.
GNWT issues a land use permit for mainline construction and timber harvest within the Ft. Simpson BLT.

September: DRR reviews a draft Environmental Protection Plan (EPP) for construction and finds it acceptable with minor revisions.
DRR hires a Renewable Resource Officer for posting in Ft. Simpson.

October : DIAND's mainline and off right-of-way (ROW) land use permit in effect.
NEB approves IPL's EPP for construction.
GNWT finds IPL's EPP for construction acceptable.

November : DIAND issues timber permits for Spreads 1 and 2.

December : Pipeline construction begins - Spreads 1 and 4.
Norman Wells Project Joint Environmental Working Group (NWPJEWG) is formed; DRR is a member.
GNWT approves the use of wood chips on Commissioner's Land.

1984

January : ROW clearing continues for the second winter.
Mackenzie River crossing is blasted.
Pipeline construction begins on Spread 6.
GNWT timber permit in effect within the Ft. Simpson BLT.
IPL submits a final EPP to the NEB and project regulators.

February : GNWT's development permit for pump station construction in effect.
IPL requests an amendment to their water licence to allow them to directional drill the Great Bear River crossing.

March : Winter facility site development begins again.
DRR completes its review of IPL's supplementary environmental studies.

May : Pump station construction begins.
Water Board approves IPL's contingency plan for construction.

June - July : Construction of the Mackenzie and Great Bear river crossings takes place.

August : Construction of remote maintenance facilities begins.

September: DRR reviews IPL's draft oil spill contingency plan for operation.

November : Pipeline construction begins - Spreads 2, 3 and 5.
GNWT implements its Renewable Resource Harvesting Policy.

1985

March : Line fill commences and conditional leave-to-open is issued.

April : IPL is granted leave-to-open.
NEB approves IPL's oil spill contingency plan for operation.

May : DRR reviews IPL's revised oil spill contingency plan.

APPENDIX II

SUMMARY OF ISSUES ASSOCIATED WITH PIPELINE DEVELOPMENT IN THE MACKENZIE VALLEY

Appendix II. Summary of Issues Associated with Pipeline Development in the Mackenzie Valley

ISSUES PRESENTED IN EVIDENCE TO NEB AND EARP BY DRR	IPL RESPONSE	RECOMMENDATIONS BY EARP	NEB ACTION	COMMENTS
1. Land use planning is needed in the Mackenzie Valley to ensure that future options are not limited by the project.	-not our problem, irrelevant to pipeline issue, our project should not preclude other facilities.	—	—	-no recommendations, but action occurred later.
2. Contingency plans for spill prevention and containment and disposition of oil and hazardous chemicals need to be more detailed and provided sooner.	-it is acceptable the way it is	-Esso and IPL develop, test, evaluate and submit contingency plans for government review prior to start of construction.	-Board must be satisfied with IPL's plans to deal with product spills during operation prior to leave-to-open.	-activities within and without the Project combined to force effective planning.
3. Proponent has not effectively dealt with the problem of terrain degradation.	-disagree	-proponent should undertake and publish analysis.	-Board would require IPL to submit reassessment of plans for minimizing terrain damage.	-some new issues - handled well. -became a non-issue. IPL response was accurate.
4. Increased access may result in problems-the department needs to know the type and permanence of new access.	-access along the Valley is already extensive, our small number of new roads are irrelevant.	—	—	-IPL response accurate-not an issue.
5. Proponent should be required to present plans for contingencies other than oil spills such as plans to shut down construction in an early spring, plans for snow road construction in the event of a year of low snowfall.	-discussed in detail elsewhere, basically this got dropped.	-Esso should have methods and procedures for handling, storing, transporting and disposing of toxic and hazardous materials prior to commencement of project.	-Board would require plans for rehabilitation of sites disturbed by accidental spills of harmful materials.	-issues seemed to disappear.
6. Proponent should be required to analyze impacts of summer construction in general and summer maintenance and repair in particular - concern reinforced later in hearings.	-said no summer construction; ignored the rest. -detailed environmentally acceptable plans	-summer construction only where demonstrably no greater impact than in winter. -detailed environmentally acceptable plans for repair and maintenance before commissioning. -construction should minimize need for extensive maintenance and repair.	-Board would require these kinds of contingency plans before allowing construction to proceed.	- summer activities became an issue after project construction.

Appendix II: continued

ISSUES PRESENTED IN EVIDENCE TO NEB AND EARP BY DRR	IPL RESPONSE	RECOMMENDATIONS BY EARP	NEB ACTION	COMMENTS
7. Governmental cooperation is required to maximize local benefits of the project.	—	—	—	—
8. Proponents must accept a broad responsibility for compensating losses of resource users, including direct monetary payments, rehabilitation and revegetation and habitat enhancement research.	—	—	—	-IPL prepared and implemented a compensation plan.
9. Proponent should be required to sponsor baseline research on woodland caribou to be done by N.W.T. Wildlife Service.	-took the position this is an ongoing responsibility of government.	-IPL undertake baseline studies on hunted and trapped species aimed at assessment of impact and mitigation.	—	-IPL did not undertake recommended studies.
10. Government control of projects is an important issue. A critical review of alternative approaches should be undertaken, perhaps by EARP.	-control is properly under the NEB, and it is very difficult to report also to Provincial or Territorial governments. Industry believes the Alyeska line was over-regulated.	-government agencies should carry out or contract to evaluate the impact management process to improve impact evaluation and mitigation in Norman Wells and other projects.	—	-not aware of any work done.
11. The Department will be required by the project to undertake considerable extra work. That includes: a. involvement in oil spill contingency planning. b. preliminary and final design review. c. baseline research on woodland caribou. d. management plans for moose, woodland caribou and furbearers in the Mackenzie Valley. e. research on habitat rehabilitation and enhancement in N.W.T.	—	-realistic government financing be assured and in place so adequate programs exist for planning and servicing the project.	—	a. yes, reviewed company's plans. b. permit review. c. not done. d. not done. e. not done.

Appendix II: continued

ISSUES PRESENTED IN EVIDENCE TO NEB AND EARP BY DRR	IPL RESPONSE	RECOMMENDATIONS BY EARP	NEB ACTION	COMMENTS
f. surveillance of construction increased enforcement responsibilities.	—	—	——	f. Yes.
12. Proponent needs to provide adequate detail to indicate his capability to mitigate impacts – such areas as:			-Board would require IPL to file a revised construction schedule including specific mitigation measures to be developed and incorporated as a result of further environmental studies.	
a. controlling attraction of carnivores and scavengers to to camps.	—	—		-feeding and to a lesser extent garbage remain an issue.
b. controlling blasting in water courses.				
c. controlling water drawdown and waste water disposal in small lakes and streams.				
d. protection of raptor nest sites.	—	—	-IPL will consider raptor nesting areas when locating pipeline route, permanent and temporary facilities and develop site-specific mitigation measures.	-specific plans inadequate (DRR view)
e. protection of island and shoreline alluvial ecosystems that provide permanent habitat for moose.				-not an issue.
f. protection of streams during pipeline crossings.	—	—		-Board accepts the undertakings of IPL regarding environmental surveillance & monitoring. Board also feels that a comprehensive and coordinated monitoring program is necessary to maintain integrity and assure success of
	—	—	-Board accepts the undertakings of IPL regarding environmental surveillance monitoring. Board is also of the view that a comprehensive and	

Appendix II: continued

ISSUES PRESENTED IN EVIDENCE TO NEB AND EARP BY DRR	IPL RESPONSE	RECOMMENDATIONS BY EARP	NEB ACTION	COMMENTS
g.control of low-flying aircraft to prevent disturbance and harrassment of wildlife. h.protection of important fish and wildlife habitat from gravel mining. i.control of illegal wildlife-related activities by workers.			coordinated monitoring program is necessary to maintain integrity and assure success of mitigative measures.	mitigative measures -not done, routine low level pipeline overflights are required. -other than feeding of wildlife, not an issue.
13.Project specific staffing needs: design reviews, oil spill contingency planning review (1), training and conservation education (1), construction surveillance and enforcement (4), Monitoring (2) if approach taken was a joint team.	—	—	—	-staff need anticipated = 8. -actual no. used = 4 -actual no. needed = 4.
14.(NEB) Because the application is deficient, much extra material has to be prepared and filed by IPL. Intervenors may not have the opportunity to review such information either after the hearing or following certification	—	—	-IPL would be required to serve notice of studies to intervenors of record and to develop a consultative mechanism for those who wish to comment.	-positive and negative features.

APPENDIX III

LIST OF ABBREVIATIONS

APPENDIX III - LIST OF ABBREVIATIONS

BLT ..... Block Land Transfer

DFO ..... Department of Fisheries and Oceans

DIAND ..... Department of Indian Affairs and Northern Development

DRR ..... Department of Renewable Resources

DPW ..... Department of Public Works

EARP ..... Environmental Assessment and Review Process

EIS ..... Environmental Impact Statement

EPA ..... Environmental Planning and Assessment

EPM ..... Environmental Procedures Manual

EPP ..... Environmental Protection Plan

FEARO ..... Federal Environmental Assessment Review Office

GHL ..... General Hunting Licence

GNWT ..... Government of the Northwest Territories

HTA ..... Hunters and Trappers Association

IPL ..... Interprovincial Pipe Line (NW) Ltd.

LUAC ..... Land Use Advisory Committee

MACA ..... Department of Municipal and Community Affairs

NEB ..... National Energy Board

NWPJEWG ..... Norman Wells Project Joint Environmental Working Group

NWT ..... Northwest Territories

RERC ..... Regional Environmental Review Committee

ROW ..... Right-of-way

TAC ..... Technical Advisory Committee